Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of Improving Wireless
Emergency Alerts and
Community-Initiated Alerting

PS Docket No. 15-91

AC&C LLC COMMENTS

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INTRODUCTION AND SUMMARY

As the Commission considers an update to the Wireless Emergency Alert ("WEA") program, AC&C LLC believes there are a number of changes that can be made to the current WEA structure to give those to whom the message is relevant the information they need to make an informed decision on protecting their lives and property. These proposed changes are a very low cost solution that will not be a burden to the carriers currently providing the platforms for WEA delivery, nor to potential new carrier participants, but will provide additional capabilities and enhancements to alert originators, and will significantly enhance the likelihood that citizens that receive alert messages are those that were intended to receive the message. Perhaps the most important evolution of the service is the addition of a device based/device assisted capability. As described in more detail below, that additional capability will improve geographic targeting, enhance message presentation, reduce the need to imbed URLs, promote usage, limit the need for testing, address public safety's need for greater granularity, maintain geographic targeting even in the aftermath of disasters, leverage device settings in order to personalize alert messages, and will be available in both rural and urban markets simultaneously. Additionally, as discussed in the Commission's NPRM, these changes will allow for the creation of additional public-private partnerships, resulting in revenue opportunities that may help to drive continued investment in, and evolution of, the WEA service.

Moving forward, AC&C recommends that as the FCC considers an evolution of its rules regarding WEA, it strongly consider the benefits of device based/device assisted discrimination. Leveraging the processing capabilities of handheld devices improves the effectiveness of WEA message content and geo-targeting, facilitate additional usage of the system and the service, thereby limiting the need for testing and proficiency training, as well as encourages citizens not to opt out and all mobile providers to participate. In particular, AC&C LLC believes that:

- Developing the opportunity for public-private partnerships that will generate revenue for WEA participants will lead to a continual evolution of the WEA service and participation by all wireless providers;

- Greater geographic-targeting capability will result in greater granularity in the targeting and delivery of alerts, resulting in alerting those people to whom the alert is relevant;

- A device-based capability that harnesses all of the processing and location capabilities of mobile handsets will lead to greater geographic-targeting capability discussed above and address the issue of over-alerting as the device will determine if the consumer is within the identified alerting area;

- A device-based approach will allow for a significant amount of information to be imbedded in the device, thereby often removing the need for alert originators to imbed links into the alert and, as a result, limiting the impact on the wireless networks;

- A device-based approach will allow consumers' personal preferences to be integrated into the alert – language of choice, font size, etc. – and because device-based works with cell broadcast and is a one way message, it protects the users privacy;

- A device-based approach may significantly improve performance in the aftermath of natural or man-made disasters as wireless carriers evolve their networks, focus fuel resources on certain towers, or deploy COWs/COLTs. Device-based capability will allow for geo-targeting even as cell site configuration evolves and the possibility for over-alerting may increase;

A DEVICE BASED APPROACH TO WIRELESS ALERTING

A device based solution uses the intelligence in the device to determine who receives the message, who does NOT receive the message, and how the message is displayed to the user. The result is a personalized mass notification system that can evolve, and is flexible, compatible, and resilient.

Device Based Benefits – An Improved Service Creates Revenue Opportunities

A device based approach creates an opportunity to evolve the service in a way that can present opportunities for public-private partnerships, resulting in continuous investment and evolution.

- Many alert originators, whether they be public safety officials or community leaders, hesitate to use WEA because under its current configuration, messages cannot easily be confined to the jurisdiction of the alert originator. A device based approach addresses those concerns about confining message only to the jurisdiction in which it was originated.
- Addressing concerns about the targeting of the alert messages will allow alert originators to consider a range of messages that can be delivered to their citizens. Improving the service creates an opportunity for public-private partnerships that

can deliver commercial benefits that will help to promote the continuous evolution of the WEA service.

AC&C strongly recommends the wireless carriers have an opportunity to contract with Alert Originator Service Providers (AOSP's) to provide public safety with a comprehensive mass notification system. Improved geo-targeting provided by a device based/device assisted solution combined with improvements to a network based solution provides an opportunity to align incentives for all stakeholders in the mass notification industry. Public Safety desires the ability to deliver an alert to 100% of the at risk population, contain the alert to only the at risk population, and send enough information in the best format to motivate the population to a desired response. AOSPs are contracting with Public Safety entities to provide solutions for creating public safety related messages that can be targeted to specific geographic areas using addresses attached to phone numbers contained in a database (usually contains less than 5% of the total population). Wireless carriers provide the capability to reach all devices in an area using a one-way cell broadcast system that does not burden the wireless networks. Device based/device assisted granular geo-targeting enables AOSP's to utilize the cell broadcast system to deliver public safety and government-related information, currently available to opt-in systems only.

Device Based Benefits -- A Flexible System that Improves Targeting and Message Presentation

A device Based approach creates a level of flexibility that does not exist in the current system with regard to both the targeting of messages and the presentation of messages.

Geo targeting

- Focuses messages to any geographic target regardless of shape or size; as small as a house or as large as the entire country.
- Confines the alert message to the defined alert area to deliver relevant information only to those who need it. By confining the message, public safety officials are now able to send multiple messages to different areas during the same crisis. This is especially helpful in the case of an evacuation.
- Improves accuracy of message delivery so that messages only reach people who are at risk, and alert is stored on device so when user crosses into an active alert area, their device will alert them.
- Displays device location within alert area to confirm relevance of the message.

Multilingual

- Messages can be sent in multiple languages and the consumer could preset the device to display only their preferred language.

Device Based Benefits -- A Compatible System

- Works with the current cell broadcast system – can integrate seamlessly into the current system and architecture.
- Leverages current and future networks with flexibility to use any medium the device is capable of receiving or utilizing -- cell broadcast, broadband data, WiFI, eMBMS, satellite, device-to-device etc.
- Allows for future enhancements to device capabilities.

Device Based Benefits -- A Resilient System

- Improves geo-targeting of messages, even as wireless networks evolve in the aftermath of a significant disaster. As network operators work to address each unique situation that a disaster presents, device-based approach may help to ensure that the right messages are delivered to the right citizens. Fuel resource allocation, access to towers, deployment of COWs and COLTs and more all will impact network coverage and performance in the aftermath of natural or man-made disasters. A device based solution will work with all of these variables.
- Utilizes any medium capable of delivering a data file to a wireless device, such as rapidly deployable networks.

WEA MESSAGING

Increasing Maximum WEA Character Length

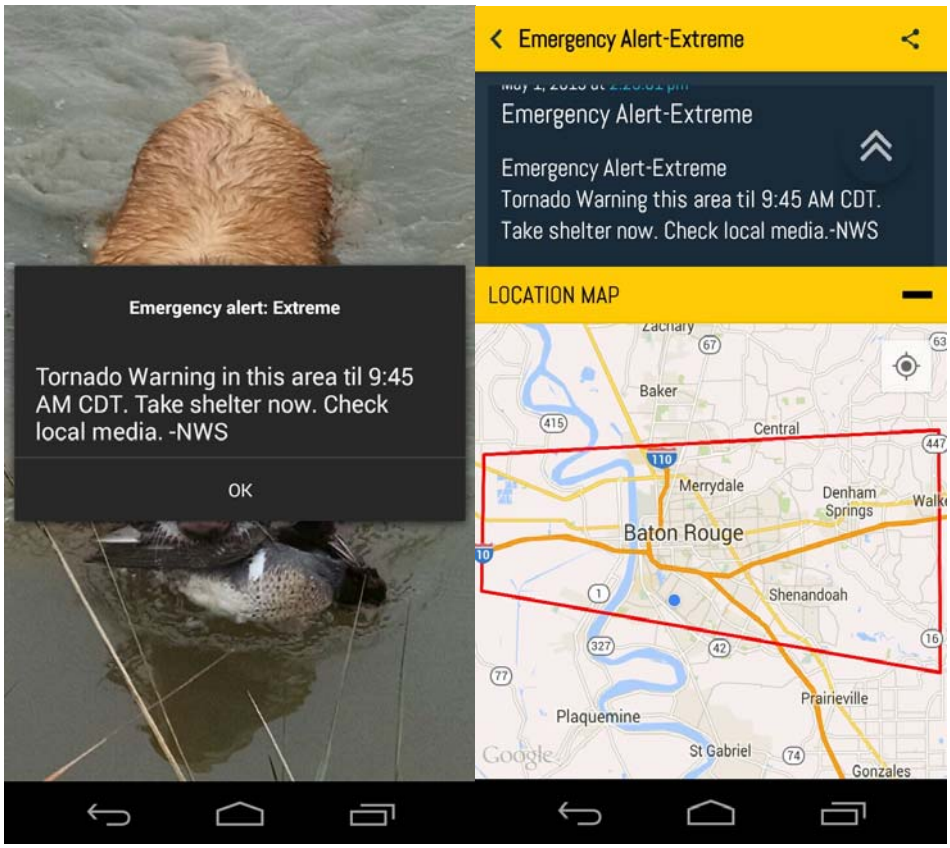
AC&C strongly supports increasing the maximum character length from 90 to 360 and encourages further expansion as advances in technology permit. Increasing the number of characters that can be transmitted to a device not only allows for more information in the form of text, but also creates more flexibility for sending additional data that can be leveraged and expanded by the device. For example, sending polygon information to the device, allows the device to determine if the user is within the targeted coordinates before displaying the alert, resulting in only those targeted being notified.

Being able to transfer more information with the alert is strongly advisable due to the fact that the alert may be the only information a person receives. Often times during, and especially after, an emergency the power goes out, which cuts off the ability to get more information. The alert can now contain information to help the user make an informed decision.

Expanding the maximum character length and sending the polygon information enables the device to display the map, target polygon, and devices' location within the polygon, reducing the need to describe the target area with text and confirm to the consumer why she or he received the alert.

There may be concerns that embedding the polygon coordinates in a transmission will reduce the amount of text in a message. However, the benefit of containing the message to those relevant citizens combined with the capability to give the recipient a visual illustration of their situation communicates more to the recipient than the additional text. Arguably, a picture is worth a thousand words, which is vital in an emergency.

See pictures below of a current WEA message and the same message sent with device based capability (the blue dot in the second screen shot is the location of the device):



These pictures also illustrate that the IPAWS system already has the information and capability to create a device based alert.

Expanding the maximum character length would provide additional flexibility to send messages that can be expanded by the device. One method is compression techniques as

developed by Carnegie Mellon and John Hopkins[1]. Another method is storing pre-formatted common messages on the device that can be automatically retrieved by the device with limited character codes.

Expanding the maximum character length combined with leveraging device capabilities with device-based solutions is the optimal solution. But even those networks restricted to the 90 character limit could benefit from leveraging device capabilities through a device based solution utilizing the methods above.

Classifying Emergency Government Information

AC&C strongly supports amending the WEA rules to allow for additional classes of alerts in conjunction with improved granular geo-targeting provided by device-based solutions. While there are concerns that additional alert categories could cause the public to disregard WEA alerts, giving local public safety the ability to geo-target AND geo-fence alerts to the most granular level would allow messaging to only those directly effected, mitigating the risk of over alerting.

Expansion of Imminent Threat Alerts

AC&C supports expanding the definition for Imminent Threat Alerts to include Emergency Government Information. Thus we support the recommendation of CISRIC IV, "Emergency Government Information message should only be used to provide information to assist citizens regarding actions to take resulting from an imminent threat to life and property." We further recommend Presidential, Amber and Imminent Threat alerts and Emergency Government Information maintain their own look and alert sound to support their importance, and remain as opt-out.

Emergency Government Information should focus on messages telling people the location of water, food, shelter etc. Those messages that will help ease the burden of the emergency and help people reduce exposure that may cause loss of life. During an Imminent Threat, these messages will provide comfort and direct people to help save their lives.

As WEA is already in place, the cost to expand the definition of Imminent Threat to include Emergency Government Information should be limited to software modifications at Alert Operator Service Providers (AOSP), FEMA IPAWS, and the handsets.

New Alert Classes

AC&C supports adding additional classes of alerts as standalone messages. The need is evident for such classes, but the wireless service providers that deliver the messages should be compensated. The proliferation of opt-in mass notification systems currently employed by local public safety illustrate the need for an improved system. Public safety is spending millions on mass notification systems to send out public safety

[1] Wireless Emergency Alerts Arbitrary-Size Location-Aware Targeting report produced by John Hopkins to DHS on June 2015

information/alerts that are only capable of reaching landlines and those individuals that have voluntarily registered in a database. A revenue stream will encourage all mobile providers to participate in the WEA service and provide funding to evolve alerting.

Allowing public safety to utilize the WEA system to send additional classes of alerts would have multiple benefits:

- Local alert systems would no longer be proprietary. Local public safety would have access to all devices within their jurisdiction, including visitors, which is very important in high tourist areas.
- The WEA system would be used more frequently. Local public safety would have more opportunities to use the system to gain experience. Therefore, they are better prepared to use the system in the rare case of an imminent threat.
- Local public safety could continue to use their current alert originator service provider (AOSP).
- Additional use of the system would actually lower the need for testing the system.
- AOSPs would continue to provide software updates, training and support to their clients in public safety.

It is important to note that local public safety pays a fee for access to opt-in mass notification systems. These contracts are generally based on a formula that includes population within the jurisdiction and usage of the system. Pricing based on population and usage becomes a natural limiting factor when sending out messaging not directly related to an imminent threat.

As part of the evolution of the WEA service, AC&C recommends an additional class of notifications -- "Public Safety Notifications" -- that has a different alert sound and look in order to differentiate it from Presidential, Amber and Imminent Threat Alerts. As described above, many jurisdictions throughout the country already are contracting for the delivery of these types of messages. Public Safety Notifications may include the following types of alerts:

- Traffic Management
    - Significant Traffic Disruption
    - Road/Bridge Closures
- Public Utility Advisories
    - Boil Water Advisories
    - Power Outages
- Criminal Activity Notifications
    - Recent Activity in Immediate Area
    - Situational Awareness -- "Happening Now"

- Public Facility and Campus Closures
    - Weather Related
    - Lockdowns
- Public Transit Notifications
    - Closures
- Public Health Notifications
    - Contaminated Food
    - Disease Outbreak
- Emergency Readiness Education
    - Preparation for Natural and Man Made Disasters

This class of alerts/notifications should maintain the opt-out and liability coverage benefits provided under the WARN ACT.

Content in WEA Alerts

AC&C supports allowing URL's and telephone numbers in conjunction with a device based/device assisted solution for certain types of alerts or situations. For example AMBER alerts or alerts contained to a limited geographic area that would not encourage mass usage and potential congestion of wireless networks could contain URLs or numbers.

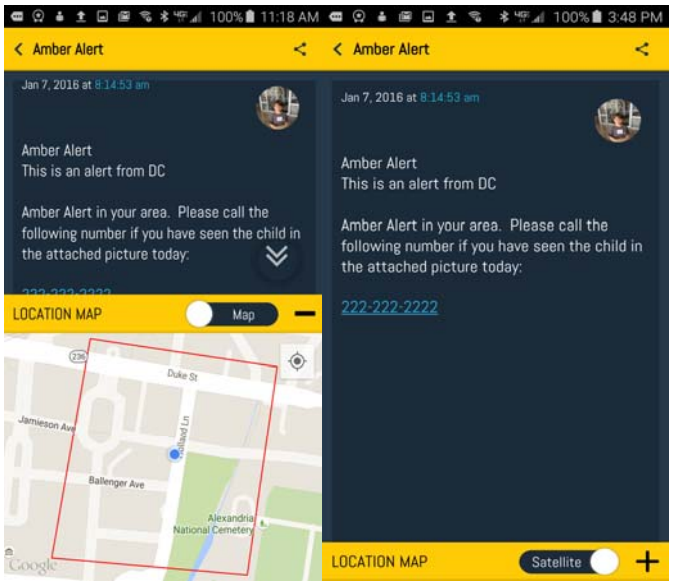
It is important to note that as the Commission evolves the WEA service, increasing the character length combined with a device assisted solution will likely reduce the need for an embedded URL. In many instances, sufficient information can be delivered in a one way broadcast by leveraging the devices intelligence to expand on the data delivered by utilizing compression techniques.

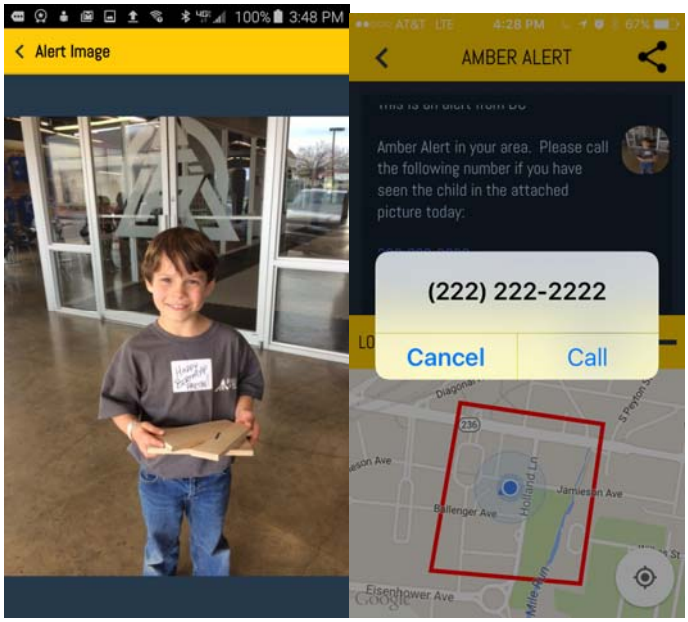
Another suggestion is storing pre-formatted common messages on the device that can be retrieved with limited character codes. An example of this is working with the START (Study of Terrorism and Responses to Terrorism) group to put together the best wording for what to do during a tornado, flash flood, etc. to convey the clearest message. These files are then stored on the device, which can be updated and additional files added to the devices with normal software updates.

Expanding the character length enables additional content as well as leverages the devices capabilities. As is mentioned above, the device can look for a certain language version of an alert – a Spanish version of the alert if the phone is set to Spanish. The device can also play the alert per the individual settings for those needing larger text or text to speech.

AC&C also encourages the use of a thumbnail or URL with AMBER alerts. Conveying the child's picture and leveraging the devices capabilities will expedite the information and interaction with the end user to assist in the location of the lost child.

For an example, see the series of screen shots below, taken from an alert. The first is the receipt of the AMBER alert. The second is viewing the entire message. Third is the child's picture and the fourth is touching the phone number on the screen to call in and report a sighting. We recommend phone numbers only be used to convey information to public safety and thus their use in this case is limited to those who have actually seen the child.





As further discussed above, AC&C recommends that the polygon coordinates depicting the alert area be sent with the message to the device. With the polygon the device can personalize the message and confirm why the person is reciving the alert. The maps to illustrate the users position can be cached on the device to minimize the need to access the network. Improved geo-targeting and geo-fencing would also allow local public safety the flexibility to send a missing child notification contained within it's jurrisdiction immediately, while the AMBER alert is processed through the proper protocol. National statistics prove the chance of finding a child alive reduces by 75 percent after the first three hours the child is taken.

As wireless networks evolve, the content that can be delivered as part of an alert likely will evolve as well. Whether it be eMBMS or other future capability, a device based/device assisted capability can evolve as well. The evolution to eMBMS may provide an opportunity for expanded content. While the user needs to turn on eMBMS to receive information, with programming a cell broadcast could be sent to the device to tell it to turn on eMBMS to receive an Imminent Threat Alert, if that is where the Commission, Public Safety and the wireless industry evolve. By moving to LTE the industry has greatly increased their flexiability to provide services through software changes, not hardware.

Providing Multilingual WEA Messages

AC&C supports providing multilingual WEA messages utilizing a device based solution. We support allowing the consumer to choose their preferred language on their device,

resulting in an alert message in their preferred language if available. If the message is not available in their langauage, the device would default to the english version.

A device based solution allows public safety the flexibility to send multiple versions of the same alert in different languages. The device can be programmed to display the preferred language version and ignore all others, or default to the english version if the preferred language is not included.

WEA GEO-TARGETING

AC&C strongly supports the evolution to a device based/device assisted solution that gives public safety the ability to geo-target and geo-fence alerts and notifications to any size and any shape area. This would allow public safety to specify which consumers would receive an alert and which consumers would NOT receive the alert. In addition, since the geographic discrimination is at the device level, any network capable of delivering the transmission to the device would maintain this capability, even when current mobile systems are knocked offline due to man made and natural disasters.

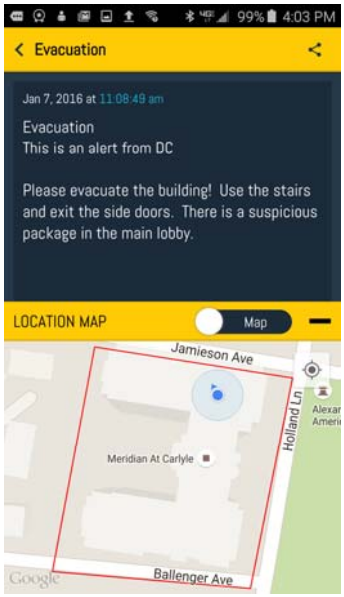
By geo-targeting a broadcast message you are enabling the most efficient use of the radio frequency to reach an unlimited number of devices within the broadcast area and geo-fence the message to those within the alert area. Combining network capabilities with device intelligence, a one-way broadcast can leverage a device's awareness for granular targeting without extracting any personal data or information from the device, thus protecting the privacy and location of the user.

It is vital to alert everyone within the alert area/polygon and for the alert to be transmitted to all of the polygon or as much of the alert area as the wireless network covers. A device based approach enables the wireless industry to utilize the existing cell broadcast approach to transmit the alert to a broader area than the polygon. The devices will contain the alert to within the alert area, thus only those the alert is relevant to are alerted. Matching the polygon exactly reduces false positive alerting (receiving an alert unnecessarily) and false negative alerting (not receiving a needed alert), which will gain the trust of the public.

AC&C agrees with CISRIC IV and START's observations that using the alert system will be surpressed until alert originators can distribute alerts to a finer geospatial area. The control that building level geo-targeting provides will give public safety confidence they are alerting only those the alert is relevant to and staying within their desiginated alert jurisdiction.

To the extent that there are concerns about the need to deliver messages without any potential latency (i.e. an earthquake warning), the software that drives a device based/device assisted solution can be programmed to deliver the message immediately without analyzing the handset's location. The same approach can be applied if the handset does not have a recent location fix and cannot get access to location capabilities – the software default can be set so that the message is played for all devices within the cell broadcast area if location information is not available.

We strongly support the approach to a device based/device assisted solution capable of leveraging improvements to the network based solutions and improvements to location based services that were outlined by NIST in the Location-based Services R&D Roadmap. Improvements to the networks capabilities to completely cover yet closely approximate the targeted area combined with the improvements to device location awareness will provide a comprehensive mass notification system that can be used at any jurisdictional level without over-burdening the carrier's network. For example, a device-based geo-targeting solution creates geo-targeting to a single building and contains the alert to just those it is relevant. The relevant area is the red box or polygon created by public safety and emergency management reflected in the screen shot below.



Note: The Blue Dot represents the devices location within the targeted polygon.

A device based/device assisted solution combined with the cell broadcast capabilities creates a flexible, compatible and resilient system. Improvements to the network's capability to approximate the polygon mitigates the risk of potential congestion of wireless networks when using a device based/device assisted solution. A device based/device assisted solution maintains the ability to geo-target and geo-fence granular geographic targets in areas where network based solution has limited capabilities due to limited number of transmission sites.

Network based enhancements in urban markets, which have numerous transmission sites (including microcells and picocells) may have the ability to approximate the designated alert area. However, in the absence of a device based/device assisted solution, the ability to approximate the polygon will be dependent on the saturation of operating transmission sites in any given area, and whether those sites are operational. Rural markets, which have fewer transmission sites, would be more limited in their ability to geo-target and geo-fence granular areas. Also, in the case of an extended power outage, these microcells and picocells may not be operational. In these situations, carriers may boost power to

fewer cell towers (boomer cells) to cover larger areas in order to maintain coverage. As a result, you would lose the ability to deliver geo-targeted messages to any area smaller than a large transmission radius.

Additionally, improved geo-targeting using device level discrimination provided by a device based solution would give the flexibility to limit the potential congestion on the carriers network by restricting the number of devices that receive the message to micro granular areas (a single building as previously displayed).

WEA TESTING AND PROFICIENCY TRAINING

AC&C supports some level of WEA testing and proficiency training. One of the challenges for Public Safety is the current policy limitations (alerts for imminant threat only) and technical limitations (lack of granular geo-targeting/geo-fencing) result in limited use. New York City, which has participated in the WEA system since 2012, has reported only utilizing the system four times since its inception. Improving granular geo-targeting and adding geo-fencing of WEA combined with additional classes of alerts will give local public safety more opprotunities to utilize the system and become more knowledgeable and profficient in its use. A device based/device assisted solution also provides more flexibility for testing the system without desensitizing the general public.

PARTICIPATING MOBILE PROVIDERS AND MOBILE SUBSCRIBER BEHAVIOR

A device based/device assisted solution combined with the cell broadcast capability will provide opportunities to encourage mobile providers to participate in the WEA program as well as encourage subscribers to not opt out. The opportunity to generate revenue with the cell broadcast system used for WEA will help carriers offset the cost of participating in the WEA system. Subscribers would be less likely to opt out with a device based/device assisted solution that can “personalize” a mass notification. Subscribers would only recieve messages relevant to them personally. They would also have the capability to receive messages formatted based on personal preference.

CONCLUSION

As the Commission considers the range of proposals identified in the NPRM, AC&C supports strong consideration for a device based/device assisted capability. As described above, that additional capability will improve geographic targeting, enhance message presentation, reduce the need to imbed URLs, promote usage, limit the need for testing, address public safety’s need for greater granularity, maintain geographic targeting even in the aftermath of disasters, leverage device settings in order to personalize alert messages, and more. Providing citizens, public safety, and other alert originators with this capability will significantly enhance the WEA service and provide for a more disaster-ready nation.